For purposes of example and without limitation, certain example embodiments of this invention relate to a protective coating formed on a light emitting surface(s) of a semiconductor laser device. For example, Fig. 1A of the instant application illustrates Si film 52a formed on the light emitting surface 51a of laser chip 51. The Si film 52a is formed between the light emitting surface 51a and the oxide protective coating 52b. The protective coating 52 comprises Al_2O_3 or the like. The provision of Si film 52a is advantageous in that, when coating 52b is formed, film 52a prevents oxygen with high energy from colliding or bonding with the light emitting end surface 51a, and enables control of damages in the vicinity of the light emitting end surface 51a (e.g., pg. 16, lines 12-25). Si film 52a is formed to have a film thickness of approximately 40 Å or less. This small thickness makes it possible to eliminate generation of leakage current in the Si film (light emitting end surface) and prevents/reduces negative influence on oscillation characteristics of the laser device (e.g., pg. 15, lines 5-10).

Claims 1-7 stand rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over O'Brien in view of Umeda. This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 1 requires "an Si film having a film thickness of 40 Å or less formed between the at least one light emitting end surface and the oxide protective coating." For example, see Si film 52a in Fig. 1A of the instant application. The cited art fails to disclose or suggest the aforesaid quoted aspect of claim 1.

O'Brien discloses a semiconductor light emitting device including first and second layers 404 and 406, respectively, formed on an end surface thereof (see Fig. 5). The first

layer 404 is of Al_2O_3, GaP, or ZnSe (col. 10, lines 9-15), and the second layer 406 (i.e., the overcoat) is of SiC, BN, BeO, AlN, BP, DLC, or MgO (col. 10, lines 17-22). However, O'Brien significantly differs from certain embodiments of this invention in that O'Brien fails to disclose or suggest a Si thin film for the first layer – instead, O'Brien teaches directly away from this by expressly criticizing the Si film of Umeda at col. 7, lines 36-41 and 63-66.

Recognizing that O'Brien fails to disclose the claimed Si film, the Office Action contends that it would have been obvious to have used Umeda's slightly hydrogenated Si film as the first layer of O'Brien under Section 103(a). This Section 103(a) rejection is fundamentally flawed with respect to claim 1 for at least the following reasons.

First, O'Brien expressly criticizes Umeda's materials at col. 7, lines 36-41 and 63-66, and states that the Si film of Umeda should not be used since it "may not provide sufficient thermal conductivity to effectively increase COD for today's laser diodes." Given this criticism of Umeda's materials by O'Brien, one of ordinary skill in the art would never have used Umeda's hydrogenated Si in the device of O'Brien because O'Brien clearly states that this should not be done. The art specifically states that the Section 103(a) modification alleged in the Office Action should not be made. *Second*, Umeda requires a very large thickness if the Si film is to be used (i.e., 406-720 Å) (see Umeda from col. 4, line 66 to col. 5, line 6; and at col. 7, lines 36-61). Thus, even if the Si layer of Umeda was used in O'Brien (which would be incorrect under Section 103 as explained above), the resulting Si layer would be much thicker than the "40 Å or less"

requirement of claim 1. For at least these reasons, the Section 103(a) rejection is clearly wrong, and should be withdrawn.

Claims 3, 8 and 9 require that the oxide protective coating comprise Al_2O_3. The cited art fails to disclose or suggest this. In particular, O'Brien clearly states that Al_2O_3 should not be used as the second layer (col. 10, lines 29-30). Given base reference O'Brien's express statement that Al_2O_3 should not be used as the second layer, one of ordinary skill in the art would never have modified O'Brien to meet these claims. The cited art teaches directly away from the inventions of claims 3, 8 and 9 in this respect. Moreover, the Office Action's statement that Umeda

For at least the foregoing reasons, it is respectfully requested that all rejections be withdrawn. All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

1. (Amended) A semiconductor laser device, comprising:

an oxide [having a specified reflectance] formed as a protective coating on at least one light emitting end surface[s] of a semiconductor laser chip; and

an Si film having a film thickness of 40 Å or less formed between the at least one light emitting end surface and the oxide protective coating.

2. (Amended) The semiconductor laser device as claimed in claim 1, wherein the Si film has a film thickness of from 5 Å [or more and] to 30 Å[or less].

3. (Amended) The semiconductor laser device as claimed in claim 1, wherein the oxide [constituting the] protective coating [is an] comprises Al_2O_3[film].

4. (Unamended) The semiconductor laser device as claimed in claim 1, wherein the semiconductor laser chip has an active layer containing Al.

5. (Amended) The semiconductor laser device as claimed in claim 1, wherein the Si film has a silicon purity of 99.99% or more.

6. (Amended) A method for manufacturing the semiconductor laser device as claimed in claim 1, comprising [a step of] forming the Si film and the oxide on the at least one light emitting end surface[, the step being executed] in succession within same equipment without exposing the surface to the air.

7. (Amended) A method for manufacturing the semiconductor laser device as claimed in claim 1, comprising [a step of] forming the Si film and the oxide through vacuum deposition.

Please add the following new claims:

8. (New) The laser device of claim 1, wherein the oxide protective coating comprises Al_2O_3.

9. (New) A semiconductor laser device, comprising:

a semiconductor laser chip;

a protective coating comprising Al_2O_3 formed on a light emitting end surface of the semiconductor laser chip; and

an intermediate film comprising silicon having a thickness of 40 Å or less formed between the light emitting end surface of the chip and the protective coating comprising Al_2O_3.